IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Henrik E. Hedlund	Confirmation No.: 3703
Application No.: 10/633,357	Group No.: 3623
Filed: 08/01/2003	Examiner: Pats, Justin

For: SYSTEM AND METHOD FOR DYNAMIC SCHEDULING OF PERSONNEL

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APPEAL BRIEF

Introductory Comments

    Pursuant to the provisions of 37 C.F.R. § 41.30 *et seq.*, the Appellant hereby appeals to the Board of Patent Appeals and Interferences (hereinafter "the Board") from the claim rejections issued in the final Office action dated June 25, 2010 (hereinafter "the final Office action"). A notice of appeal was filed on October 14, 2010 in conjunction with a Pre-Appeal Brief Request for Review. A Notice of Panel Decision from Pre-Appeal Brief Review was sent on December 6, 2010.

Real Party In Interest

The real party in interest is the Assignee of the present application, Verint Americas, Inc.

Related Appeals and Interferences

There are no prior or pending related appeals or interferences.

Status of Claims

Claims 1, 3-22, and 25-34 are pending in the application.

Claims 1, 3-22, and 25-34 have been finally rejected.

Claims 1, 3-22, and 25-34 are being appealed.

Claims 2, 23, and 24 have been canceled.

Status of Amendments

No amendments have been filed subsequent to the final Office action.

Summary of Claimed Subject Matter

Independent claim 1 provides computer implemented method for automatically generating an optimized workforce schedule (see, generally, Abstract). The method comprises, in a scheduling server, processing past schedules using a pattern recognition procedure to recognize historical shift patterns for a particular position indicated in the past schedules (see Fig. 1; para. 08 and 34). The historical shift patterns comprise a resource dependent shift pattern based on when a resource is working a particular position, a time dependent shift pattern based on when a specific task needs to be performed, and a ratio dependent shift pattern based on when a certain number of a first type of position must be scheduled with a certain number of a second type of position (see para. 34). The method further comprises, in the scheduling server, creating an initial workforce schedule based on the historical shift patterns and employee attributes (see para. 46). The method further comprises, in the scheduling server, refining the initial workforce schedule to generate an optimized workforce schedule based on the initial workforce schedule, forecasted demand, and employee preferences (see para. 49-50).

Independent claim 21 provides a system for automatically generating an optimized workforce schedule (see, generally, Abstract). The system comprises a scheduling server and an access device communicatively coupled with the scheduling server over a data communications network (see Fig. 1). The access device is configured to allow a user to interact with the scheduling server (see para. 26 and 30). The system further comprises a data storage area configured to store past schedules, forecasted demand, and employee attributes (see para. 8, 32, and 34). The scheduling server is configured to process past schedules using a pattern recognition procedure to recognize historical shift patterns for a particular position indicated in the past schedules (see para. 08 and 34). The historical shift patterns comprise a resource dependent shift pattern based on when a resource is working a particular position, a time dependent shift pattern based on when a specific task needs to be performed, and a ratio dependent shift pattern based on when a certain number of a first type of position must be scheduled with a certain number of a second type of position (see para. 0034). The scheduling server is further configured to create an initial workforce schedule based on the historical shift

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patterns, forecasted demand, and employee attributes (see para. 46). The scheduling server is further configured to create an optimized workforce schedule based on user input via the access device (see para. 49-50).

Grounds of Rejection to Be Reviewed on Appeal

1. Whether 1, 3-12, 15-16, 18-19, 21-22, 26-29, 32, and 34 are unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,587,831 to O'Brien in view of *Variable Neighborhood Search for Nurse Rostering Problems* by Burke, *Nurse Rostering at the Hospital Authority of Hong Kong* by Chun, and *Fitness Evaluation for Nurse Scheduling Problems* by Burke (hereinafter referred to as Burke 2).

2. Whether claims 13, 14, 30, and 31 are unpatentable under 35 U.S.C. § 103(a) over O'Brien in view of Burke, Chun, and Burke 2, further in view of Applicant's Admitted Prior Art.

3. Whether claims 17, 20, and 33 are unpatentable under 35 U.S.C. § 103(a) over O'Brien in view of Burke, Chun, and Burke 2, further in view of a public use of GMT Planet software.

4. Whether claim 25 is unpatentable under 35 U.S.C. § 103(a) over O'Brien in view of Burke, Chun, and Burke 2, further in view of U.S. Patent No. 7,222,082 to Adhikari.

Argument

Outline

I. Rejection of Claims 1, 3-12, 15-16, 18-19, 21-22, 26-29, 32, and 34 Under 35 U.S.C. § 103(a)

Claims 1, 3-12, 15-16, 18-19, 21-22, 26-29, 32, and 34 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,587,831 to O'Brien in view of *Variable Neighborhood Search for Nurse Rostering Problems* by Burke, *Nurse Rostering at the Hospital Authority of Hong Kong* by Chun, and *Fitness Evaluation for Nurse Scheduling Problems* by Burke (hereinafter referred to as Burke 2). The Appellant disagrees for the reasons presented below.

Specifically, the present rejection erroneously equates handling *general* shift related tasks of Burke 2 with handling *specific* tasks, as recited by claim 1. Regardless, Burke 2 fails to recognize patterns of general tasks from past schedules, much less recognize specific tasks, as provided by claim 1. The Appellant therefore respectfully disagrees with the rejection, as discussed in more detail below, and appropriate review is requested.

Claim 1 provides creating a workforce schedule based on historical shift patterns recognized by processing past schedules. One of the historical shift patterns recognized by the scheduling server is a time dependent shift pattern based on when a specific task needs to be performed. In other words, the scheduling server recognizes a pattern in past schedules that indicates that a specific task needs to be performed at a certain time and then creates a workforce schedule accordingly.

The final Office action dated 6/25/2010 acknowledges that O'Brien, Burke, and Chun all fail to disclose recognizing a historical time dependent shift pattern based on when a specific task needs to be performed, as recited by claim 1. However, Burke 2 also fails to disclose this limitation. Rather, Burke 2 merely discloses scheduling workers to various shifts and only implicitly provides that these shifts are scheduled based on general shift related tasks. Burke 2 does not explicitly or implicitly teach generating a schedule based on when a *specific* task needs to be performed. Furthermore, even if the general shift related tasks could be considered a specific task, Burke 2 does not recognize the general shift related tasks from historical patterns from past schedules, as provided by claim 1.

In particular, Burke 2 provides that each worker could be assigned to the morning, late, or night shift (see Burke 2, Table 1). Table 2 then displays to which of these shifts, if any, five people, P1-P5, were assigned during the current planning period as well as during a previous planning period. Similarly, Table 3 displays a time unit representation of Table 2, which displays time units when each of the people, P1-P5, were scheduled. The final Office action asserts that the people scheduled in Tables 2 and 3 are scheduled for when shift related tasks need to be performed by people P1-P5 (see final Office action, page 6). However, general shift related tasks do not equate to when a *specific* task needs to be performed. Additionally, while Burke 2 may display a previous planning period, Burke 2 does not mention anything about recognizing a pattern in the previous planning period that would equate to a historical shift pattern regardless of whether that shift pattern is based on when a specific task needs to be performed.

For at least the above reasons, the final Office action incorrectly asserts that Burke 2 discloses historical time dependent shift pattern based on when a specific task needs to be performed, as recited by claim 1.

In view of the discussion above, the Applicant submits that O'Brien, Burke, Chun, and Burke 2, alone or in combination, all fail to teach or suggest all of the limitations of claim 1. Claim 1 is therefore allowable over the art of record.

Independent claim 21 contains limitations similar to those of claim 1 and is therefore allowable over the art of record for at least the same reasons as claim 1. The Applicant refrains from a discussion of the remaining dependent claims in view of their dependence from otherwise allowable independent claims.

II. Rejection of Claims 13, 14, 30, and 31 Under 35 U.S.C. § 103(a)

Claims 13, 14, 30 and 31 stand rejected under 35 U.S.C. § 103(a) as unpatentable over O'Brien in view of Burke, Chun, and Burke 2, further in view of Applicant's Admitted Prior Art. Claims 13 and 14 depend from independent claim 1, and claims 30 and 31 depend from independent claim 21, thereby incorporating the provisions of their respective independent claims. Therefore, the Appellant respectfully asserts that claims 13, 14, 30, and 31 are allowable for at least the reasons presented above in support of claims 1 and 21, and such indication is respectfully requested.

III. Rejection of Claim 17, 20, and 33 Under 35 U.S.C. § 103(a)

Claims 17, 20, and 33 stand rejected under 35 U.S.C. § 103(a) as unpatentable over O'Brien in view of Burke, Chun, and Burke 2, further in view of a public use of GMT Planet software. Claims 17 and 20 depend from independent claim 1, and claim 33 depends from independent claim 21, thereby incorporating the provisions of their respective independent claims. Therefore, the Appellant respectfully asserts that claims 17, 20, and 33 are allowable for at least the reasons presented above in support of claims 1 and 21, and such indication is respectfully requested.

IV. Rejection of Claim 25 Under 35 U.S.C. § 103(a)

Claim 25 stands rejected under 35 U.S.C. § 103(a) as unpatentable over O'Brien in view of Burke, Chun, and Burke 2, further in view of U.S. Patent No. 7,222,082 B1 (Adhikari). Claim 25 depends from independent claim 21, thereby incorporating the provisions of claim 21. Therefore, the Appellant respectfully asserts that claim 25 is allowable for at least the reasons presented above in support of claim 21, and such indication is respectfully requested.

Conclusion

In light of the foregoing remarks, the Appellant submits that the final rejection of claims 1, 3-22, and 25-34 is erroneous, and respectfully requests its reversal.

Included herewith is payment for the appropriate fee under 37 C.F.R. § 41.20(b)(2) for this appeal brief (37 C.F.R. §§ 41.37(a)(2)). The attendant notice of appeal and fee (37 C.F.R. §§ 41.61(a)(1) and 41.20(b)(1)) were filed previously on October 14, 2010. Also included herewith is payment for the appropriate fee under 37 C.F.R. § 1.17(a)(1) for a one-month extension of time (37 C.F.R. § 1.136(a)). The Appellant believes no additional fees are due with respect to this filing. However, should the Office determine that additional fees are necessary, the Office is hereby requested to contact the undersigned to arrange for payment of the applicable fees.

Respectfully submitted,

/Brian L. Arment/

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Claims Appendix

The following is a list of claims involved in this appeal:

1. (PREVIOUSLY PRESENTED) A computer implemented method for automatically generating an optimized workforce schedule, comprising:

in a scheduling server, processing past schedules using a pattern recognition procedure to recognize historical shift patterns for a particular position indicated in the past schedules, wherein the historical shift patterns comprise a resource dependent shift pattern based on when a resource is working a particular position, a time dependent shift pattern based on when a specific task needs to be performed, and a ratio dependent shift pattern based on when a certain number of a first type of position must be scheduled with a certain number of a second type of position;

in the scheduling server, creating an initial workforce schedule based on the historical shift patterns and employee attributes; and

in the scheduling server, refining the initial workforce schedule to generate an optimized workforce schedule based on the initial workforce schedule, forecasted demand, and employee preferences.

2. (CANCELED)

3. (ORIGINAL) The method of claim 1, wherein employee attributes comprise an employee's skill set.

4. (ORIGINAL) The method of claim 1, wherein employee preferences comprise an employee's desired number of hours.

5. (ORIGINAL) The method of claim 1, wherein the refining step further comprises receiving a forecasted demand as input.

6. (ORIGINAL) The method of claim 5, wherein the forecasted demand is for a single employee position.

7. (ORIGINAL) The method of claim 5, wherein the forecasted demand is for multiple employee positions.

8. (ORIGINAL) The method of claim 1, wherein the refining step further comprises generating an optimized workforce schedule based on resource availability.

9. (ORIGINAL) The method of claim 1, wherein the refining step further comprises generating an optimized workforce schedule based on a predefined number of work hours per week for an employee.

10. (ORIGINAL) The method of claim 1, wherein the refining step further comprises generating an optimized workforce schedule based on full time and part time employee availability.

11. (ORIGINAL) The method of claim 1, further comprising receiving a modification to the optimized workforce schedule from a user.

12. (ORIGINAL) The method of claim 11, wherein the modification is received via an input device configured to provide changes for a particular resource through a user interface.

13. (ORIGINAL) The method of claim 12, wherein the input device is a mouse.

14. (ORIGINAL) The method of claim 12, wherein the input device is a keyboard.

15. (ORIGINAL) The method of claim 1, wherein the forecasted demand comprises multiple forecasts for a particular position.

16. (ORIGINAL) The method of claim 1, wherein the resources selected for the initial

workforce schedule are predefined.

17. (ORIGINAL) The method of claim 1, wherein the resources selected for the initial workforce schedule are dynamically selected.

18. (ORIGINAL) The method of claim 1, wherein the refining step further comprises:
    creating an alternative schedule;
    comparing the alternative schedule to the initial schedule to determine the optimal schedule; and
    using the optimal schedule as the optimized workforce schedule.

19. (ORIGINAL) The method of claim 1, wherein employee resources are located in a centralized pool of resources.

20. (ORIGINAL) The method of claim 1, further comprising generating a color coded report to illustrate how closely the optimized workforce schedule is meeting the forecasted demand for a given position.

21. (PREVIOUSLY PRESENTED) A system for automatically generating an optimized workforce schedule, comprising:

a scheduling server;

an access device communicatively coupled with the scheduling server over a data communications network, the access device configured to allow a user to interact with the scheduling server;

a data storage area configured to store past schedules, forecasted demand, and employee attributes;

the scheduling server configured to process past schedules using a pattern recognition procedure to recognize historical shift patterns for a particular position indicated in the past schedules, wherein the historical shift patterns comprise a resource dependent shift pattern based on when a resource is working a particular position, a time dependent shift pattern based on when a specific task needs to be performed, and a ratio dependent shift pattern based on when a certain number of a first type of position must be scheduled with a certain number of a second type of position;

the scheduling server further configured to create an initial workforce schedule based on the historical shift patterns, forecasted demand, and employee attributes; and

the scheduling server further configured to create an optimized workforce schedule based on user input via the access device.

22. (ORIGINAL) The system of claim 21, wherein the access device and the scheduling server are at different locations.

23-24. (CANCELED)

25. (ORIGINAL) The system of claim 21, wherein the access device allows a user to adjust the forecasted demand for an employee position.

26. (ORIGINAL) The system of claim 21, wherein the scheduling server is further configured to consider resources availability when creating the initial workforce schedule.

27. (ORIGINAL) The system of claim 21, wherein the scheduling server is further configured to consider a predefined number of work hours per week for an employee when creating the optimized workforce schedule.

28. (ORIGINAL) The system of claim 21, wherein the scheduling server is further configured to consider an employee skill set when creating the optimized workforce schedule.

29. (ORIGINAL) The system of claim 21, wherein the scheduling server is further configured to consider full time and part time employee availability when creating the optimized workforce schedule.

30. (PREVIOUSLY PRESENTED) The system of claim 21, wherein the access device comprises a mouse input device that allows a user to modify an optimized workforce schedule.

31. (PREVIOUSLY PRESENTED) The system of claim 21, wherein the access device comprises a keyboard input device that allows a user to modify an optimized workforce schedule.

32. (ORIGINAL) The system of claim 21, where in the forecasted demand comprises multiple forecasts for a particular position.

33. (ORIGINAL) The system of claim 21, further comprising a report generator configured to provide a color coded report identifying how close the optimized workforce schedule is meeting the forecasted demand for a given position.

34. (ORIGINAL) The system of claim 21, wherein the data storage area is coupled with a data server that is separate from the scheduling server.

Evidence Appendix

None

<u>Related Proceedings Appendix</u>

None